Listing of Claims

1.   (Currently Amended)   A method for producing an image with a magnetic resonance imaging (MRI) system, the steps comprising:

acquiring a plurality of image data sets from a subject using the MRI system, each image data set being acquired with a different pulse sequence prescription that weights the acquired image data sets differently;

reconstructing a plurality of images of the subject from the acquired image data sets;

mapping each ~~acquired~~ of the plurality of images to a different color; and

combining each mapped color image to form a single composite color image.

2.   (Original)   The method as recited in claim 1 which includes displaying the composite color image.

3.   (Original)   The method as recited in claim 1 which includes analyzing the composite color image to identify a plurality of different tissue types therein.

4.   (Original)   The method as recited in claim 3 in which the analysis is a cluster analysis of pixels in the composite color image based on the color of the pixels.

5.   (Original)   The method as recited in claim 3 in which the subject is an artery and the tissue types are found in atherosclerotic plaque.

6.   (Original)   The method as recited in claim 1 in which the different pulse sequence prescriptions include a T_1 weighted prescription, a T_2 weighted prescription and a proton density weighted prescription.

7.   (Original)   The method as recited in claim 6 in which the composite color image is analyzed based on the color of pixels in the composite color image to identify a plurality of different tissue types therein.

8.   (Currently Amended)   The method as recited in claim 1 which includes

normalizing each ~~acquired~~ of the plurality of images to equally weight the magnitudes of the plurality of images prior to forming the composite color image.

9.   (Currently Amended)   A method for analyzing atherosclerotic plaque in the blood vessel of a subject, the steps comprising:

a)   acquiring a plurality of image data sets using a magnetic resonance imaging (MRI) system, each image data set being acquired with a pulse sequence have a prescription that weights the acquired image data sets for different atherosclerotic tissue class types;

b)   reconstructing a plurality of images of the subject using the acquired image data sets;

~~b~~c)   mapping each ~~acquired~~ of the plurality of images to a different color;

~~c~~d)   combining each mapped color image to form a single composite color image; and

~~d~~e)   analyzing the composite color image to identify a plurality of different atherosclerotic tissue types therein.

10.   (Original)   The method as recited in claim 9 in which the different pulse sequence prescriptions include a T_1 weighted prescription, a T_2 weighted prescription and a proton density weighted prescription.

11.   (Currently Amended)   The method as recited in claim 9 which includes calculating a magnitude image from each ~~acquired~~ of the plurality of images and normalizing each magnitude image to equally weight the magnitudes therein prior to forming the composite color image therewith.

12.   (Currently Amended)   The method as recited in claim 9 in which step ~~c~~d) includes registering the mapped color images before they are combined.

13. (Currently Amended)   The method as recited in claim 9 in which step d̶e̶) includes performing a cluster analysis of the colors in said composite color image.

14. (Currently Amended)   The method as recited in claim 9 in which step d̶e̶) includes performing an active contour analysis of the colors in said composite color image.

15. (Currently Amended)   The method as recited in claim 9 in which step d̶e̶) includes

    i)   performing an active contour analysis of the composite color image to identify the lumen of the blood vessel depicted therein; and

    ii)   performing cluster analysis on the region surrounding the identified lumen to identify a plurality of different tissue types therein.

16. (Currently Amended)   The method as recited in claim 15 in which step d̶e̶) further includes:

    iii)   locating the outer border of plaque tissues;

    iv)   locating regions in which the plaque thickness deviates substantially from the average plaque thickness around the lumen; and

    v)   performing further cluster analysis on said located regions.

17. (Original)   A method for analyzing atherosclerotic plaque in the blood vessel of a subject, the steps comprising:

    a)   acquiring a plurality of images of the blood vessel, each image being acquired with a prescription that weights the acquired data for different atherosclerotic tissue types;

    b)   mapping each acquired image to a different vector component image;

    c)   combining each mapped vector component image to form a single composite vector image in which each pixel is the vector sum of the corresponding vector component values in the mapped vector component images; and

    d)   analyzing the composite vector image to identify a plurality of different atherosclerotic tissue types therein.

18.   (Original)   The method as recited in claim 17 in which step a) is performed on a magnetic resonance imaging system with pulse sequences that are prescribed to weight the acquired data for different atherosclerotic tissue types.

19.   (Original)   The method as recited in claim 18 in which the prescriptions include a T_1 weighted prescription, a T_2 weighted prescription, and a proton density weighted prescription.